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Using of intramolecular condensation reaction in synthesis of geterocyclics of (Se, S, N, O) - Atoms

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ABSTRACT - In this paper, synthesis of five and seven-membered ring which containing hetroatom (Se, S, N, O) via several steps, the first step in this reaction, 2,2-methylene-bis(4-nitro phenol) reacts with (selenium, sulphur, nitrogen, oxygen)-compounds to yield cyclic derivatives of (Se, S, N,O) which cyclized via intramolecular condensation reaction in the second step. The formated compounds [1-9] have been investigated by using various chemical techniques, such as:(H-NMR–Spectra,(C.H.N)-analysis, FT.IR-spectra) and Melting points.

Key words - Selenium, Intramolecular condensation, Hetrocyclic

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About one century ago selenium was incorporated in the table, selenium shares with sulphur and tellurium some phesical and chemical properties.Selenium, sulphur and nitrogen-compounds act as active nucleophiles which able to react with electrophiles (alkyl halides, carbonyl compounds such as aldehydes, carboxylic acids) to yield intermediats, which give variouse heterocyclic compounds from (Se,S,N,O), this compounds have biological activity[1,2].

Heterocycles are found as construction units through several biological molecules, since these compounds have (Selenium, sulphur, nitrogen, oxygen), atoms in their contents which make it has many pharmaceutical interest [3,4], dyestuffs industry[5] and other applications such as anticancer[6,7], antioxidant[8,9], physiology importance[10,11], in synthesis of organic compounds[12-15], in toxicological studies[16-18] for this reasons many methods [19-20] for preparation of different heterocyclic compounds have been developed.

EXPERIMENTAL METHODOLOGY

– All chemicals used where supplied from Merck and BDH-chemical company.

– All measurement where carried out by :

– Melting points :Electro thermal 9300, melting point Engineering LTD, U.K.

– FT.IR-spectra: fourrier transform infrared shimadzu (8300), (FT.IR), KBr-disc was performed by CO.S.Q. Iraq.

– H.NMR-Spectra and (C.H.N)-Analysis in Jordan.

Synthesis of compound [1]:

Amixture of (0.02 mole, 2.7 g) of 4-nitrophenol with formaldehyde(0.01 mole) were reacted in presence of (4ml) of sulphuric acid (98%) and (50ml) distilled water, the precipitate formed, filtered off to give(3.4g) 82 per cent of compound[1].

Synthesis of compounds [2-5]:

Amixture of compound[1] (0.01mole, 2.9g) and (0.02mole) of mercaptobutoyl chloride or sodium selenobutoyl chloride or aminobutoyl chloride or alanine), respectively were heated for (3 hrs) in presence of ethanol, the precipitate was filtered off and recrystallized to give (80-84) per cent of compounds[2-5], respectively.

Synthesis of compounds [6-9]:

Amixture of salicyldehyde (0.02mole) and (0.01mole) of